

List of courses Master Study Bioinformatics (Version WS2017)

			Sem1	Sem2	Sem3	Sem4	ECTS
			ECTS	ECTS	ECTS	ECTS	
Fach: Complementary Subjects			875COMS16				30
Fach: Complementary Subjects for Bioinformaticians (30 ECTS) - list of choice			Typ				
Molekulare Biologie der Zelle I	2VL	TPMPBVOMBZ1	3				
Molekulare Biologie der Zelle I	1UE	TPMWBUEMBZ1	1,5				
Introduction into Instrumental Analytics for Life-Sciences	2KV	875GBICIAK12		3			
Basics in Chemistry for Bioinformatics	1KV	875GBICBCHK12	1,5				
Numerical and Symbolic Methods for Bioinformatics	2KV	875GMATNSMK12	3				
Statistik 2	2KV	INMAWKVSTA2	3				
Rechnerarchitektur	3VL	521HARDRARC16		4,5			
Rechnerarchitektur	1UE	521HARDRARC16		1,5			
Software Engineering	2VL	INBIPVOSENG	3				
Software Engineering	1UE	INBIPUESENG	1,5				
Systemnahe Programmierung	2PR	INBIPPRSPRO	3				
Computer Graphics	2VL	INBIPVOCOGR		3			
Computer Graphics	1UE	INBIPUECOGR		1,5			
Algorithmen und Datenstrukturen 2	2VL	INBIPVOALG2	3				
Logic	2VL	521THEOLOGV13	3				
Logic	1UE	521THEOLOGU13	1,5				
Parallel Computing	3KV	921COENPACK13		4,5			
Software Architectures	3KV	921SOENSARK13		4,5			
Computer Forensics and IT Law	2VL	921NESECILV13	3				
Visual Analytics	2VL	921DASIVIAV17	3				
Fach: Complementary Subjects for Biologists (30 ECTS)			Typ	875CBIO16			
Fach: Basics of Bioinformatics			Typ	875BABI16			
Sequence analysis and phylogenetics	2VL	675GTSBSAPV16	3				
Sequence analysis and phylogenetics	2UE	675GTSBSAPU16	3				
Genome Analysis & Transcriptomics	2KV	675GTSBGATK13		3			
Structural Bioinformatics	2KV	675GTSBSTBK13		3			
Fach: Basics of Algorithms and Data Structures			Typ	875GALD12			
Artificial Intelligence	2VL	INBIPVOAINT	3				
Algorithmen und Datenstrukturen or	2KV	TM1PEKVADAT	3				
Algorithmen und Datenstrukturen 2	2VL	INBIPVOALG2					
Fach: Basics of Information Systems			Typ	875GINS12			
Informationssysteme 1	2VL	INBIPVOIFS1	3				
Informationssysteme or	2KV	TM1PEKVINFO					
Visual Analytics	2VL	921DASIVIAV17	3				
Informationssysteme 1	2UE	INBIPUEIFS1					
Fach: Basics of Mathematics			Typ	875GMAT12			
Numerical and Symbolic Methods for Bioinformatics	2KV	875GMATNSMK12	3				
Statistik 2	2KV	INMAWKVSTA2	3				
Fach: Complementary Subjects for Chemists (30 ECTS)			Typ	875CCHE16			
Fach: Basics of Bioinformatics			Typ	875BABI16			
Sequence analysis and phylogenetics	2VL	675GTSBSAPV16	3				
Sequence analysis and phylogenetics	2UE	675GTSBSAPU16	3				
Genome Analysis & Transcriptomics	2KV	675GTSBGATK13		3			
Structural Bioinformatics	2KV	675GTSBSTBK13		3			
Fach: Basics of Algorithms and Data Structures			Typ	875GALD12			
Artificial Intelligence	2VL	INBIPVOAINT	3				
Algorithmen und Datenstrukturen or	2KV	TM1PEKVADAT	3				
Algorithmen und Datenstrukturen 2	2VL	INBIPVOALG2					
Fach: Basics of Information Systems			Typ	875GINS12			
Informationssysteme 1	2VL	INBIPVOIFS1	3				
Informationssysteme or	2KV	TM1PEKVINFO					
Visual Analytics	2VL	921DASIVIAV17	3				
Informationssysteme 1	2UE	INBIPUEIFS1					
Fach: Basics of Mathematics			Typ	875GMAT12			
Numerical and Symbolic Methods for Bioinformatics	2KV	875GMATNSMK12	3				
Statistik 2	2KV	INMAWKVSTA2	3				
Fach: Complementary Subjects for Computer Scientists and Business Informaticians (30 ECTS)			Typ	875CCSB16			
Fach: Basics of Bioinformatics			Typ	875BABI16			
Sequence analysis and phylogenetics	2VL	675GTSBSAPV16	3				
Sequence analysis and phylogenetics	2UE	675GTSBSAPU16	3				
Genome Analysis & Transcriptomics	2KV	675GTSBGATK13		3			
Structural Bioinformatics	2KV	675GTSBSTBK13		3			
Fach: Basics of Molecular Biology			Typ	875GMOB12			
Molekulare Biologie der Zelle I	2VL	TPMPBVOMBZ1	3				
Molekulare Biologie der Zelle I	1UE	TPMWBUEMBZ1	1,5				
Fach: Basics of Biochemistry			Typ	875GBIC12			
Introduction into Instrumental Analytics for Life-Sciences	2KV	875GBICIAK12		3			
Basics in Chemistry for Bioinformatics	1KV	875GBICBCHK12	1,5				
Chemie für Physiker II	2VL	LP2PCVOCHP2	3				
Fach: Basics of Mathematics			Typ	875GMAT12			

Numerical and Symbolic Methods for Bioinformatics	2KV	875GMATNSMK12	3					
Statistik 2	2KV	INMAWKVSTA2	3					
Fach: Complementary Subjects for Mathematicians (30 ECTS)	Typ	875CMAT16						
Fach: Basics of Bioinformatics	Typ	875BABI16						
Sequence analysis and phylogenetics	2VL	675GTSBSAPV16	3					
Sequence analysis and phylogenetics	2UE	675GTSBSAPU16	3					
Genome Analysis & Transcriptomics	2KV	675GTSBGATK13		3				
Structural Bioinformatics	2KV	675GTSBSTBK13		3				
Fach: Basics of Molecular Biology	Typ	875GMOB12						
Molekulare Biologie der Zelle I	2VL	TPMPBVOMBZ1	3					
Molekulare Biologie der Zelle I	1UE	TPMWBUEMBZ1	1,5					
Fach: Basics of Biochemistry	Typ	875GBIC12						
Introduction into Instrumental Analytics for Life-Sciences	2KV	875GBICIALK12		3				
Basics in Chemistry for Bioinformatics	1KV	875GBICBCHK12	1,5					
Chemie für Physiker II	2VL	LP2PCVOCHP2	3					
Fach: Basics of Algorithms and Data Structures	Typ	875GALD12						
Artificial Intelligence	2VL	INBIPVOAINT	3					
Algorithmen und Datenstrukturen or	2KV	TM1PEKVADAT	0					
Algorithmen und Datenstrukturen 2	2VL	INBIPVOALG2						
Fach: Basics of Information Systems	Typ	875GINS12						
Informationssysteme 1	2VL	INBIPVOIFS1	0					
Informationssysteme or	2KV	TM1PEKVINFO						
Visual Analytics	2VL	921DASIVIAV17	3					
Informationssysteme 1	2UE	INBIPUEIFS1						
Fach: Complementary Subjects for Physicists (30 ECTS)	Typ	875CPHY16						
Fach: Basics of Bioinformatics	Typ	875BABI16						
Sequence analysis and phylogenetics	2VL	675GTSBSAPV16	3					
Sequence analysis and phylogenetics	2UE	675GTSBSAPU16	3					
Genome Analysis & Transcriptomics	2KV	675GTSBGATK13		3				
Structural Bioinformatics	2KV	675GTSBSTBK13		3				
Fach: Basics of Molecular Biology	Typ	875GMOB12						
Molekulare Biologie der Zelle I	2VL	TPMPBVOMBZ1	3					
Molekulare Biologie der Zelle I	1UE	TPMWBUEMBZ1	1,5					
Fach: Basics of Biochemistry	Typ	875GBIC12						
Introduction into Instrumental Analytics for Life-Sciences	2KV	875GBICIALK12		3				
Basics in Chemistry for Bioinformatics	1KV	875GBICBCHK12	1,5					
Chemie für Physiker II	2VL	LP2PCVOCHP2	0					
Fach: Basics of Information Systems	Typ	875GINS12						
Informationssysteme 1	2VL	INBIPVOIFS1	3					
Informationssysteme or	2KV	TM1PEKVINFO						
Visual Analytics	2VL	921DASIVIAV17	3					
Informationssysteme 1	2UE	INBIPUEIFS1						
Fach: Basics of Mathematics	Typ	875GMAT12						
Numerical and Symbolic Methods for Bioinformatics	2KV	875GMATNSMK12	0					
Statistik 2	2KV	INMAWKVSTA2	3					
Fach: Bioinformatics and Machine Learning	Typ	875BIML16						
Machine Learning: Supervised Techniques	2VL	875BIMLMSTV16	3					
Machine Learning: Supervised Techniques	1UE	875BIMLMSTU16	1,5					
Machine Learning: Unsupervised Techniques	2VL	875BIMLMUTV16		3				
Machine Learning: Unsupervised Techniques	1UE	875BIMLMUTU16		1,5				
Basic Methods of Data Analysis	2KV	875BIMLMDAK16	3					
Theoretical Concepts of Machine Learning	2VL	INMAWVOTCML		3				
Genome Assembly	2KV	875BIMLGAFK16			3			
Deep Learning and Neural Networks	2KV	875BIMLDLNK16		3				
			Total	7,5	10,5	3	0	21
Fach: Seminar Bioinformatics	Typ	875SBIN12						
Seminar Bioinformatics	2SE	875SBINSBIS12			3			
			Total	0	0	3	0	3
Fach: Project Bioinformatics	Typ	875PBIN12						
Project Bioinformatics	4PR	875SBINPBIP12			9			
			Total	0	0	9	0	9
Fach: Soft Skills and Ethics	Typ	875SOSK14						
Präsentations- und Arbeitstechnik	2KV/3ECTS	INBIPKVPRAT						
Rechtsgrundlagen für Informatiker	2VL/3ECTS	INBIPVORECH						
Gender Studies Managing Equality TN	2KV/3ECTS	GS-ME-TN						
Ethics and Gender Studies	2VL/3ECTS	GS-BC						
Management and Marketing	2VL/3ECTS	480MABAMAMV12						
Soziale und geschlechterspezifische Aspekte der IT	2KS/3ECTS	926SGAIGAIS14						
Spezialthemen der Philosophie	2KS/3ECTS	572WSPHSPK15						
						3		
			Total	0	0	0	3	3
Fach: Area of Specialisation	Typ	875ARSP16						
Special Topics on Bioinformatics (Computer Science)	2KV/3ECTS	875ARSPSTCK16						
Special Topics on Bioinformatics (Biology/Chemistry/Physics/Mathematics)	2KV/3ECTS	875ARSPSTBK16						

<i>Fach: Area of Specialisation: Computer Science</i>		875ASPC16					
Information systems for Bioinformatics	4KV/6ECTS	875BIN4ISBK12					
Learning from User-generated Data	3KV/4,5ECTS	921INSYLUDK13					
Visual Analytics	2VL/3ECTS	921DASIVIAV17					
Information Visualization	3KV/4,5ECTS	921CGELINVK13					
Probabilistic Models	2VL/3ECTS	921COENPRMV13					
Probabilistic Models	1UE/1,5ECTS	921CGELPRMU13					
Introduction to R	2KV/3ECTS	675INTRTRK13					
Rechnerarchitektur	3VL/4,5ECTS	521HARDRARC16					
Rechnerarchitektur	1UE/1,5ECTS	521HARDRARC16					
Digitale Signalverarbeitung	1UE/1,5ECTS	521HARDDSVU13					
Digitale Signalverarbeitung	2VL/3ECTS	521HARDDSVV13					
Software Engineering	1UE/1,5ECTS	INBIPUJESENG					
Software Engineering	2VL/3ECTS	INBIPOVSENG					
Application Oriented Knowledge Processing	2KV/3ECTS	921CGELAOKK13					
Biometrische Identifikation	2VL/3ECTS	INMAWVOBIDE					
Computer Forensics and IT Law	2VL/3ECTS	921NESECILV13					
Digitale Bildverarbeitung	2KV/3ECTS	INMAWKVDBVA					
Human/Computer Interaction	2VL/3ECTS	921CGELHCIV13					
Machine Learning and Pattern Classification	3KV/4,5ECTS	921PECOMLPK13					
Parallel Computing	3KV/4,5ECTS	921COENPACK13					
Requirements Engineering	2KV/3ECTS	921SOENREQK13					
Software Architectures	3KV/4,5ECTS	921SOENSARK13					
Software Testing	2KV/3ECTS	921SOENSOTK13					
Special Topics (1,5 ECTS)	1KV/1,5ECTS	921CSPST1K13					
Special Topics (1,5 ECTS)	1UE/1,5ECTS	921CSPST1U13					
Special Topics (1,5 ECTS)	1VL/1,5ECTS	921CSPST1V13					
Special Topics (3 ECTS)	2KV/3ECTS	921CSPST2K13					
Special Topics (3 ECTS)	2UE/3ECTS	921CSPST2U13					
Special Topics (3 ECTS)	2VL/3ECTS	921CSPST2V13					
Special Topics (4,5 ECTS)	3KV/4,5ECTS	921CSPST3K13					
Special Topics	2SE/3ECTS	921CSPST2S13					
Theoretical Concepts of Machine Learning	1UE/1,5ECTS	INMAWUETCML					
Web Search and Mining	2KV/3ECTS	921CGELWIRK13					
<i>Fach: Area of Specialisation: Biology/Physics</i>		875ASPB16					
Bioanalytics I	2VL/3ECTS	470WEBIBA1V14					
Bioanalytics I	1UE/1,5ECTS	470WEBIBA1U14					
Bioanalytics II	2VL/3ECTS	470WEBIBA2V14					
Bioanalytics II	1UE/1,5ECTS	470WEBIBA2U14					
Biologische Signalisierung II	1VL/1,5ECTS	TPMWBVOBIS2					
Biologische Signalisierung I	2VL/3ECTS	TPMPBVOBIS1					
Biophysik III	2VL/3ECTS	TPMPBVOBIP3					
Biophysik II	2VL/3ECTS	TPMPBVOBIP2					
Charakterisierung von Bio-Nanostrukturen	2VL/3ECTS	TPMPBVOCBIN					
Advanced Topics of Molecular Biotechnologies	2VU/3ECTS	865AABBATMU16					
Mikroskopie an Biomolekülen	2VL/3ECTS	TPMPBVOMIBI					
Molekularbiologie II	3PR/4,5ECTS	TPMWBPRMOB2					
Molekularbiologie II	1VL/1,5ECTS	TPMWBVOMOB2					
Molekularbiologie I	2PR/3ECTS	TPMWBPRMOB1					
Molekularbiologie I	2VL/3ECTS	TPMWBVOMOB1					
Molekulare Biologie der Zelle II	1UE/1,5ECTS	TPMWBUEMB22					
Molekulare Biologie der Zelle II	2VL/3ECTS	TPMWBVOMB22					
Theoretische Biophysik II	1UE/1,5ECTS	TPMWBUETB12					
Theoretische Biophysik II	2VL/3ECTS	TPMWBVOTB12					
Theoretische Biophysik I	1UE/1,5ECTS	TPMPBUETB11					
Theoretische Biophysik I	2VL/3ECTS	TPMPBVOTB11					
Genomische Datenanalyse	4VU/6ECTS	665GEDAGEDU11					
Biophysik I	2VL/3ECTS	261BIPHBPV15					
<i>Fach: Area of Specialisation: Chemistry</i>		875ASPC16					
Chemical Calculations	2KV/3ECTS	663AACHCCAK17					
Organic Chemistry 1	4VL/5,2ECTS	BCBPOVOORCH					
Advanced NMR 2	1KV/1,6ECTS	863STBCAN2K10					
Biophysik I für Molekulare Biowissenschaften	3VL/4,5ECTS	665PHBPBPHV11					
Analytische Chemie III	2VL/2,6ECTS	TCBPBVOANC3					
Biochemistry	2VL/2,6ECTS	TCBPFVOBICH					
Advanced NMR 1	1VL/1,3ECTS	491WORCAN1V10					
Seminar on NMR spectroscopy	1SE/1,5ECTS	700DCHMMNRS11					
Seminar in Structural and Computational Biochemistry	1SE/1,6ECTS	863STBCSCBS13					
<i>Fach: Area of Specialisation: Mathematics</i>		875ASPM16					
Stochastische Simulation	1UE/1,5ECTS	TMCPAUESIMU					
Stochastische Simulation	2VL/3ECTS	TMCPAVOSIMU					
Inverse Probleme	2VL/3ECTS	TMBPAVOINVE					
Stochastische Prozesse	2VL/3ECTS	TMBPAVOPROZ					
Statistische Signalverarbeitung	2VL/3ECTS	MEMWDVOSTSV					

Computer Algebra for Concrete Mathematics	1UE/1,5ECTS	201SYMRCACU12					
Computer Algebra for Concrete Mathematics	2VL/3ECTS	201SYMRCACV12					
Diskrete Optimierung	1UE/1,5ECTS	TM1WGUEDOPT					
Diskrete Optimierung	2VL/3ECTS	TM1WGVODOPT					
Funktionalanalysis und Integrationstheorie	2UE/3ECTS	TM1PCUEFANA					
Funktionalanalysis und Integrationstheorie	4VL/6ECTS	TM1PCVOFANA					
Inverse Probleme	1UE/1,5ECTS	TM1WEUEINVE					
Logik als Arbeitssprache	2KV/3ECTS	TM1PGKVLOGA					
Markov-Ketten	1UE/1,5ECTS	TM1WCUEMARK					
Markov-Ketten	2VL/3ECTS	TM1WCVOMARK					
Optimierung	4KV/6ECTS	TM1PDKVOPTI					
Partielle Differentialgleichungen	2UE/3ECTS	TM1WAUEPDGL					
Partielle Differentialgleichungen	4VL/6ECTS	TM1PAVOPDGL					
Stochastische Prozesse	1UE/1,5ECTS	TM1WCUEPROZ					
Stochastic Processes	2KV/4ECTS	951MATSSPRK14					
					6	9	
			Total	0	6	9	0
Fach: Free Electives		875FRST12					
				1,5	4,5	6	
			Total	1,5	4,5	6	0
Fach: Master's Seminar	Typ	875MAAR12					
Master's Seminar	2SE	875VINFBK12					3
Master's Thesis							22
Master's Examination							2
			Total	0	0	0	27
				30	30	30	30
							120

Sem1: incl. 21 ECTS in Complementary Subjects

Sem2: incl. 9 ECTS in Complementary Subjects

-> in sum 30 ECTS in Complementary Subjects

Stand: 19.5.2017